Mint of the United States at Philadelphia
MELTING AND REFINING
Philadelphia,

14th Decem. 1

Superiority of the Invention of Mr. H. S. Cochran, to modify or construct a Balance so as to economize time in weighing, and to diminish greatly the Wear and Tear of Balances.

To weigh gold and silver with the exactness which their value demands, the balance must be sensitive to minute fractions of the weight. To ascertain the true weight on our Mint balances much time is consumed in determining these fractions of weight, by raising and lowering the dishes, loaded with the Bullion and its counter weights, repeatedly, and waiting patiently each time of raising until the exact weight is determined. This operation not only involves a considerable loss of time, and consequently expense, in the time of the 5 or 6 hands, attending on the weighing, — but also involves a severe wear of the knife-edges and their plates, by the frequent raising & lowering the balance, so that the latter ceases after a time to exhibit the true weight. Hence the frequent discrepancy between the weights of the same mass of bullion on two balances, — the occasional, but serious, untrustworthiness of fractions of weights in our records, — and the necessity and inconvenience of constant supervision and repair, especially in the vast proportions of the present coinage operations of the Mint.

The ordinary Mint balance has been modified by an invention of Mr H. S. Cochran, with the express object of obviating the above difficulties, dangers and costs. The principle on which the proposed improvement acts, is, that when the balance, with its load and weights, is raised, a tolerably close approximation to the true weight is at once indicated on a scale of numbers. The proposed modification of a balance is easily and inexpensively executed.

Jas C Booth M. & R.

14 December 1881

To H. S. Cochran
On his 'Balance'